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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Trotta

Confirmation No.: 4617

Filed: July 12, 2006

Group Art Unit: 1639

Serial No.: 10/551,301

Examiner: To be Assigned

For:

METHODS FOR IDENTIFYING

Attorney Docket No: 10589-013-999

COMPOUNDS THAT TARGET TRNA SPLICING ENDONUCLEASE AND USES

OF SAID COMPOUNDS AS ANTI-

PROLIFERATIVE AGENTS

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§1.56 AND 1.97

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure imposed by 37 C.F.R. §1.56 and §1.97 to inform the Patent Office of all references coming to the attention of each individual associated with the filing or prosecution of the subject application, which are or may be material to the patentability of any claim of the application, Applicant hereby directs the Examiner's attention to references A01-A17, B01-B15 and C01-C73, listed on the attached form entitled "List of References Cited by Applicant." Legible copies of references B01-B15 and C01-C73 are submitted herewith.

Copies of references A01-A17 are not submitted herewith because they are U.S. patents, patent publications and pending applications that have been stored in the IFW system of United States Patent and Trademark Office. Pursuant to 37 C.F.R. §1.98 (a)(2)(i) as amended (see Fed. Reg. vol. 69, no. 182, Sept. 21, 2004), the requirement for providing a copy of each U.S. patent or U.S. patent application publication listed in an Information Disclosure Statement in a patent application, regardless of the filing date of the application, is eliminated.

Identification of the listed references is not to be construed an admission of Applicant or Attorneys for Applicant that such references are available as "prior art" against the subject application. Applicant respectfully requests that the Examiner review the foregoing references and that the references be made of record in the file history of the application.

Pursuant to 37 C.F.R. §1.97 (b)(3), Applicant estimates that no fee is due in connection with the filing of this Information Disclosure Statement. However, should the Patent Office determine otherwise, please charge the necessary fee to Jones Day Deposit Account No. 50-3013.

Respectfully submitted,

Laura A. Coruzzi January 9, 2007 Date:

JONES DAY

222 East 41st Street

New York, New York 10017 (212) 326-3939

30,742 (Reg. No.) Ry: Hy f. M. 7 Reg. No. 44,412

LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary)

ATTY. DOCKET NO. 10589-013-999	APPLICATION NO. 10/551,301
APPLICANT Trotta, C.	
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U.S. PATENT DOCUMENTS					
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	PAGES, COLUMNS, LINES, WHERE RELEVANT PASSAGES OR RELEVANT FIGURES APPEAR
	A01	4,987,071	01/22/91	Cech et al.	
	A02	5,093,246	03/03/92	Cech et al.	
	A03	5,310,664	05/10/94	Butow et al.	
	A04	5,354,855	10/11/94	Cech et al.	
	A05	5,439,797	08/08/95	Tsien et al.	
	A06	5,591,610	01/07/97	Cech et al.	
	A07	5,726,195	03/10/98	Hill et al.	
	A08	5,776,738	07/07/98	Dell'Orco Sr.	
	A09	5,939,288	08/17/99	Thornburg	
	A10	5,994,124	11/30/99	Bozzoni	
	A11	6,025,167	02/15/00	Cech et al.	
	A12	6,180,399	01/30/01	Cech et al.	
	A13	6,214,563	04/10/01	Negulescu et al.	
	A14	6,221,587	04/27/01	Ecker et al.	
	A15	6,221,612	04/24/01	Knapp et al.	
	A16	6,232,070	05/05/01	Shuman	
	A17	6,446,032	09/03/02	Schimmel	

		FOREIG	N PATENT DOCUMENTS		
	FOREIGN PATENT DOCUMENT COUNTRY CODE, NUMBER, KIND CODE (IF KNOWN)	DATE	NAME	PAGES, COLUMNS, LINES, WHERE RELEVANT PASSAGES OR RELEVANT FIGURES APPEAR	Т
B01	WO 91/09942	07/11/91	Board of Regents, The University of Texas System		
B02	WO 98/49274	11/05/98	Appligene-Oncor		<u> </u>
 B03	WO 99/20795	04/29/99	Melica HB		
 B04	WO 01/12820	02/22/01	Health Research Institute		
B05	WO 01/25486	04/12/01	University of Medicine and Dentistry of New Jersey		
B06	WO 01/92463	12/06/01	Istituto di biologia Cellulare, CNR		
 B07	WO 02/083837	10/24/02	Almstead		

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^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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 B08	WO 02/083953	10/24/02	PTC Therapuetics, Inc		ļ
B09	WO 02/40685	05/23/02	Cornell Research Foundations, Inc.		<u> </u>
B10	WO 02/42326	05/30/02	Biota Scientific Management Pty LTD		<u> </u>
BII	WO 04/001010	12/31/03	PTC Therapeutics, Inc.		
B12	WO 04/087070	10/14/04	PTC Therapeutics, Inc.		<u> </u>
 B13	WO 04/087884	10/14/04	PTC Therapeutics, Inc.		
 B14	DE 3436818	04/10/89	Hoechst AG		
B15	CN 1328156	12/26/01	Wuhan Inst Of Virology Chinese		

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials		(Include name of the author (in CAPITAL LETTERS), Title, Date, Pertinent Pages, Etc.)	Т	
	C01	ABELSON et al.,1998, "tRNA splicing." Journal of Biological Chemistry 273(21):12685-12688		
•	C02	ADAMS et al., 1991, "Fluorescence ratio imaging of cyclic AMP in single cells." Nature 349:694-697		
	C03	BALDI et al., 1992, "Participation of the intron in the reaction catalyzed by the Xenopus tRNA splicing endonuclease." Science 255:1404-1408.		
	C04	BARBINO & KELLLER, 1999, "Last but not least: regulated poly(A) tail formation." Cell 99(1):9-11		
	C05	BELFORD et al., 1993, "Multiple nucleotide cofactor use by yeast ligase in tRNA splicing. Evidence for independent ATP- and GTP-binding sites" J. Biol. Chem. 268(4):2444-2450		
	C06	BELFORT, M., & WEINER, A., 1997, "Another bridge between kingdoms: tRNA splicing in archaea and eukaryotes" Cell 89(7):1003-1006.		
	C07	BJORK, G., 1995, "Biosynthesis and Function of Modified Nucleosides, in tRNA: Structure, Biosynthesis and Function" D. Soll & H. RaiBhandary (eds.), American Society for Microbiology, Washington DC: pp. 165-205		
	C08	BUJNICKI, J.M., & RYCHLEWSKI, L., 2000, "Prediction of a common fold for all four subunits of the yeast tRNA splicing endonuclease; implications for the evolution of the EndA/Sen family." FEBS Lett 486: 328-329.		
	C09	BUVOLI et al, 2000, "Suppression of nonsense mutations in cell culture and mice by multimerized suppressor tRNA genes" Molecular and Cellular Biology 20(9):3116-3124		
	C10	CALVO, O., AND MANLEY, J.L., 2003, "Strange bedfellows: polyadenylation factors at the promoter." Genes		
	CII	CHOI AND DREYFUSS, 1984, "Monoclonal antibody characterization of the C proteins of heterogeneous nuclear ribonucleoprotein complexes in vertebrate cells." J. Cell. Biol. 99(6):1997-2004	_	
-	C12	CULVER et al., 1997, "A 2'-phosphotransferase implicated in tRNA splicing is essential in Saccharomyces cerevisiae." J Biol Chem 272:13203-13210.		
	C13	DE VRIES, H. et al., 2000, "Human pre-mRNA cleavage factor II(m) contains homologs of yeast proteins and bridges two other cleavage factors." EMBO J 19:5895-5904.		

	DATE CONSIDERED
NYI-3913323v3	

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initiais	C14	DEUTSCHER, M.P., 1995 "tRNA Processing Nucleases, in tRNA:Structure, Biosynthesis and Function." D. Soll and U. RiaBhandary (eds.), American Society for Microbiology, Washington DC: pp. 51-65	
	C15	DIENER & MOORE, 1998, "Solution Structure of a Substrate for the Archael Pre-tRNA Splicing Endonucleases: The Bulge-Helix-Bulge Motif." Mol. Cell. 1:883-894	
	C16	FABBRI, S et al., 1998, "Conservation of substrate recognition mechanisms by tRNA splicing endonucleases." Science 280, 284-286.	
	C17	FRANK & PACE, 1998, "Ribonuclease P: unity and diversity in a tRNA processing ribozyme." Annu Rev Biochem 67, 153-180.	
	C18	FRUSCOLONI et al., 2001, "Cleavage of non-tRNA substrates by eukaryal tRNA splicing endonucleases." EMBO Rep 2(3):217-221	
	C19	GANDINI-ATTARDI, et al., 1990, "Transfer RNA splicing endonuclease from <i>Xenopus laevis</i> ." Methods Enzymol 181:510-517.	
	C20	GENBANK: Accession No: NP_079541; "tRNA splicing endonuclease 2 homolog [Homo sapiens]"	
	C21	GENBANK: Accession No: NT_005927.12; "Homo sapiens chromosome 3 reference genomic contig"	
	C22	GENBANK: Accession No: NT_011225.9; "Homo sapiens chromosome 19 reference genomic contig."	
	C23	GENBANK: Accession No: XP_085899; "similar to LENG5 protein [Homo sapiens]."	
	C24	GOMES et al., 1997, "RNA splicing ligase activity in the archaeon Haloferax volcanii" Biochem & Biophys. Res. Comm. 237:588-94	
	C25	GREER et al., 1982, "Mechanism of action of a yeast RNA ligase in tRNA splicing" Cell 32:537-546	
	C26	GREER., 1986, "Assembly of tRNA Splicing Complex: Evidence for Concerted Excision and Joining Steps in Splicing <i>In Vitro</i> ." Mol. and Cellular. Bio., 6(2):638-642	
	C27	HIROSE AND MANLEY, 2000, "RNA polymerase II and the integration of nuclear events." Genes Dev., 14(12):1415-1429	
	C28	HOPPER, A.K., AND PHIZICKY, E.M., 2003, "tRNA transfers to the limelight." Genes Dev 17(2):162-180.	
	C29	HUH, et al., 2003, "Global analysis of protein localization in budding yeast." Nature 425:686-691.	
	C30	HYDE-DERUYSCHER et al., 2000, "Detection of Small-Molecule Enzyme Inhibitors with Peptides Isolated from Phage-Displayed Combinatorial Peptide Libraries." Chem. & Biol. 7:17-25	
	C31	IKEMURA, 1985, "Codon Usage and tRNA Content in Unicellular and Multicellular Organisms." Mol. Biol. Evol., 2(1):13-34	
	C32	IKEMURA, T. AND OKEKI, H., 1983, "Codon usage and transfer RNA contents: organism-specific codon-choice patterns in reference to the isoacceptor contents." Cold Spring Harbor Symp. Quant. Biol. 47:1087-1097	
	C33	JACOBSON et al., 1997, "Nuclear domains of the RNA subunit of RNase P." J Cell Sci. 110 (Pt 7):829-837.	
	C34	KLEMAN-LEYER et al., 1997, "Properties of H. volcanii tRNA Intron Endonuclease Reveal a Relationship between the Archaeal and Eucaryal tRNA Intron Processing Systems." Cell., 89:839-847	
	C35	LASKI, F.A. et al., 1983, "Characterization of tRNA precursor splicing in mammalian extracts." J Biol. Chem. 258(19):11974-11980.	_
	C36	LI & ABELSON, 2000, "Crystal Structure of a Dimeric Archaeal Splicing Endonuclease." J. Mol. Biol. 302:639-648	
	C37	LI et al., 1998, "Crystal structure and evolution of a transfer RNA splicing enzyme" Science 280(5361):279-284	4

EXAMINER NYI-3913323v3	DATE CONSIDERED

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NON PATENT LITERATURE DOCUMENTS					
Examiner Initials		(Include name of the author (in CAPITAL LETTERS), Title, Date, Pertinent Pages, Etc.)	T		
antidio	C38	LYKKE-ANDERSEN, J. & GARRETT, R.A., 1997, "RNA-protein interactions of an archaeal homotetrameric splicing endoribonuclease with an exceptional evolutionary history." EMBO J 16(20):6290-6300.			
	C39	MINVIELLE-SEBASTIA, L. & KELLER, W., 1999, "mRNA polyadenylation and its coupling to other RNA processing reactions and to transcription." Curr. Opin. Cell. Biol. 11:352-357			
	C40	O'CONNOR, J.P., & PEEBLES, C.L., 1992, "PTA1, an essential gene of Saccharomyces cerevisiae affecting			
	C41	OTSUKA, et al., 1981, "Ribonuclease 'Xlal' an activity from Xenopus laevis oocytes that excises intervening sequences from yeast transfer ribonucleic acid precursors." Mol Cell Biol 1:269-280.			
	C42	PARK & BHANDARY, 1998, "Tetracycline-regulated suppression of amber codons in mammalian cells." Mol.			
	C43	PHIZICKY et al., 1986, "Saccharomyces cerevisiae tRNA ligase. Purification of the protein and isolation of the structural gene" J. of Biol. Chem. 261(6):2978-2986			
	C44	PREKER et al., 1997, "A multisubunit 3'-end processing factor from yeast containing poly(A) polymerase and homologues of the subunits of mammalian cleavage and polyadenylation specificity factor." EMBO J 16:4727-4737			
	C45	PROUDFOOT, 2000, "Connecting transcription to messenger RNA processing." Trends Biochem Sci. 2000 Jun;25(6):290-3. Review.			
	C46	QIN & PYLE, 1999, "Site-specific labeling of RNA with fluorophores and other structural probes." Methods 18			
•	C47	RAUHUT et al., 1990, "Yeast tRNA-splicing endonuclease is a heterotrimeric enzyme." J Biol. Chem. 265(30): 18180-18184.			
	C48	REYES & ABELSON 1988, "Substrate Recognition and Splice Site Determination in Yeast tRNA Splicing." Cell, 55:719-730			
	C49	SARKAR & HOPPER., 1998, "tRNA Nuclear Export in Saccharomyces cerevisiae: In Situ Hybridization Analysis." Mol. Biol. of the Cell., 9:3041-3055	_		
	C50	SAXENA et al., 1992, "Angiogenin is a Cytotoxic, tRNA-specific Ribonuclease in the RNase A Superfamily."			
	C51	STANDRING et al., 1981, "Yeast tRNA3Leu gene transcribed and spliced in a HeLa cell extract." Proc. Natl.			
	C52	TAKAGAKI et al., 2000, "Complex protein interactions within the human polyadenylation machinery identify a povel component" Mol. Cell. Biol. 20:1515-1525.			
	C53	TAKAKU et al., 2003, "A candidate prostate cancer susceptibility gene encodes tRNA 3' processing endoribonuclease." Nucleic Acids Res 31(9):2272-2278.			
	C54	TROTTA et al., 1997, "The yeast tRNA splicing endonuclease: a tetrameric enzyme with two active site subunits homologous to the archaeal tRNA endonucleases." Cell 89:849-858.			
	C55	TROTTA, C.R. AND ABELSON, J.N., 1999, "tRNA Splicing: An RNA World Add-On or an Ancient Reaction? In RNA World II" Tom Cech, Ray Gesteland and John Atkins (eds.), Cold Spring Harbor Laboratory Press, 561-584			
	C56	TROTTA., 1999, "The Composition, Function and Evolution of the tRNA Splicing Endonuclease." Thesis,			
	C57	TSIEN et al., 1993, "FRET for studying intracellular signaling." Trends in Cell. Bio. 3(7): 242-245	_		
	C58	VAUGHN et al., 2002, "Methonine In and Out of Proteins: Targets for Drug Design." Curr. Med. Chem. 9(3):385-409			

NYI-3913323v3		DATE CONSIDERED
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	C59	VOLAREVIC et al., 2000, "Proliferation, But not Growth Blocked by Conditional Deletion of 40S Ribosomal Protein S6." Science 288:2045-2047				
	C60	WAHLE & RUEGSEGGER, 1999, "3'-End processing of pre-mRNA in eukaryotes." FEMS Micro Rev., 23(3):277-295				
	C61	WALLACE et al., 1999, "Two distinct forms of the 64,000 Mr protein of the cleavage stimulation factor are				
	C62	WANG et al., 1990, "Substrate Masking: Binding of RNA by EGTA-Inactivated Micrococcal Nuclease Results in Artifactual Inhibition of RNA Processing Reactions." Nuc. Acids Res. 18(22):6625-6626				
	C63	WINTER et al., 2000, "RNA polymerase III transcription factor TFIIIC2 is overexpressed in ovarian tumors." Proc. Natl. Acad. Sci., 97(23):12619-12624				
	C64	XIAO et al., 2002, "Eukaryotic ribonuclease P: a plurality of ribonucleoprotein enzymes." Annu Rev Biochem				
	C65	XU et al., 1990, "Purification of yeast transfer RNA ligase." Meth. in Enzymol. 181:463-471	_			
	C66	Yeast Accession No: M32336; SEN2	_			
	C67	Yeast Accession No: YAR008w; SEN34				
	C68	Yeast Accession No: YMR059w; SEN15	\perp			
	C69	Yeast Accession No: YPL083c; SEN54				
	C70	YOSHIHISA et al., 2003, "Possibility of cytoplasmic pre-tRNA splicing: the yeast tRNA splicing endonuclease mainly localizes on the mitochondria." Mol Biol Cell 14(8):3266-3279.				
	C71	ZHANG et al., 1997, "Gene Expression Profiles in Normal and Cancer Cells." Science 276:1268-1272				
	C72	ZHAO, 1999 "Formation of mRNA 3' ends in eukaryotes: mechanism, regulation, and interrelationships with other steps in mRNA synthesis." Microbiol. Mol. Biol. Rev. 63:405-445.				
	C73	REYES et al., 1987, "A synthetic substrate for tRNA splicing." Anal. Biochem. 166(1):90-106				

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